

Name: Key

Important Eq:  $PE = mgh$

KE vs PE

$KE = \frac{1}{2}mv^2$

$ME = Total$

①

$$PE = \frac{200J}{}$$

$$KE = \frac{800J}{}$$

$$ME = \frac{1000J}{}$$

②

$$PE = \frac{1000J}{}$$

$$KE = \frac{0J}{}$$

$$ME = \frac{1000J}{}$$

③

$$PE = \frac{500J}{}$$

$$KE = \frac{500J}{}$$

$$ME = \frac{1000J}{}$$

④

$$PE = \frac{0J}{}$$

$$KE = \frac{1000J}{}$$

$$ME = \frac{1000J}{}$$

⑤

$$PE = \frac{700J}{}$$

$$KE = \frac{300J}{}$$

$$ME = \frac{1000J}{}$$

$ME = Total$   
Energy = same throughout  
the whole system.

Assume gravity =  $10 \text{ m/s}^2$   
mass =  $10 \text{ kg}$

$$PE = mgh$$
  
 $= 10 \cdot 10 \cdot 7$   
 $= 700J$

$$PE = mgh$$
  
 $= 10 \cdot 10 \cdot 5$   
 $= 500J$

$$PE = mgh$$
  
 $= 10(10)(10)$   
 $= 1000J$

$$PE = mgh$$
  
 $= 10 \cdot 10 \cdot 2$   
 $= 200J$

$$ME = PE + KE$$
  
 $1000J = 200J + KE$   
 $KE = 800J$

$$PE = 50 \cdot 10 \cdot 4$$
  
 $= 2000J$

①

$$PE = \frac{2000J}{}$$
$$KE = \frac{0J}{}$$
$$ME = \frac{2000J}{}$$
$$v = \frac{0 \text{ m/s}}{}$$

②

$$PE = \frac{1500J}{}$$

$$KE = \frac{500J}{}$$

$$ME = \frac{2000J}{}$$

$$v = \frac{4.5 \text{ m/s}}{}$$

③

$$PE = \frac{0J}{}$$

$$KE = \frac{2000J}{}$$

$$ME = \frac{2000J}{}$$

$$v = \frac{8.9 \text{ m/s}}{}$$

④

$$PE = \frac{1100J}{}$$

$$KE = \frac{900J}{}$$

$$ME = \frac{2000J}{}$$

$$h = \frac{2.2 \text{ m}}{}$$

$m = 50 \text{ kg}$

